

### Remarks

By this amendment, claims 1 and 24 have been amended. Claims 1, 3-16, 18-24, and 26-39 remain pending. Support for the instant amendments is provided throughout the as-filed application. Thus, no new matter is believed to have been added. In view of the following comments, allowance of all the claims pending in the application is respectfully requested.

Entry of the Amendment is proper under 37 C.F.R. §1.116 as the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not present any new issues that would require further consideration and/or search as the amendments merely amplify issues discussed throughout the prosecution; (c) do not present any additional claims without canceling a corresponding number of claims; (d) place the application in better form for appeal, should an appeal be necessary; and (e) were not made earlier because they are made in response to the points first presented in the final Office Action. Entry of the Amendment is thus respectfully requested along with withdrawal of the final Office Action.

**Claims 1 and 24 were rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. Applicant traverses.**

The Office Action asserts there is no support for "second force in the negative first direction at the second end of the second side." Applicant respectfully disagrees and refers to, for example, paragraph [0041] and Figure 5 of the specification where it is described that "[f]or mass M2 [in Figure 5], this results in a transverse force FA2 that is oriented upwards... For mass M1, however, the transverse force FA1 is oriented downwards and provides an additional clamping force for clamping the patterning device MA to the support MT." Thus, it describes a second force, e.g., force FA2, in the negative first direction, e.g. upwards, at the second end of the second side.

Accordingly, Applicant requests withdrawal of the rejection of claims 1 and 24 under 35 U.S.C. §112, first paragraph.

**Claims 1 and 24 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Applicant traverses.**

The Office Action asserts that there is insufficient antecedent basis for “the positive first direction” and “the negative first direction.” Applicant believes a person of ordinary skill in the art would readily appreciate that if, for example, the first direction is the Z-axis (in a X-Y-Z coordinate system), then the positive first direction would be, for example, moving toward +Z values or moving toward higher +Z values. Similarly, if, for example, the first direction is the Z-axis (in a X-Y-Z coordinate system), then the negative first direction would be, for example, moving toward -Z values or moving toward lower -Z values. However, merely to expedite prosecution and without any intention of narrowing the scope of the claim, Applicant has amended claims 1 and 24.

Accordingly, Applicant requests withdrawal of the rejection of claims 1 and 24 under 35 U.S.C. §112, second paragraph.

**Claims 1, 3-6, 10, 11, 14, 22-24, 26-29, 33 and 34 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Japanese Patent Application Publication No. JP 11-040657A to Sato et al. (“Sato”) in view of U.S. Patent No. 6,469,773 to Iwamoto (“Iwamoto”) and U.S. Patent No. 5,976,260 to Kinoshita et al. (“Kinoshita”). Applicant traverses.**

Claim 1

Applicant submits that the cited portions of Sato, Iwamoto and Kinoshita do not appear to at least disclose or teach a lithographic apparatus wherein, *inter alia*, the support is associated with a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, the clamping device further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force or second force in a negative first direction at the second end of the second side, as recited in claim 1.

Applicant submits, as apparently acknowledged in the Office Action, that the

cited portions of Sato fail to disclose or teach a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device.

Further, Applicant submits that the cited portions of Sato fail to disclose or teach a clamping device configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force or second force in a negative first direction at the second end of the second side.

The Office Action responds at page 4 of the Office Action that "Sato however, does teach that each of the first end and the second end of the second side have a vacuum clamping device." However, Applicant fails to see how that discloses the recited differing application of forces. Rather, it appears that both apertures 30a, 32a merely apply a same force in a same direction to the reticle 3 to hold the reticle.

Even assuming *arguendo* that the cited portions of Sato, Iwamoto and Kinoshita are properly combinable (which Applicant does not concede), the cited portions of Iwamoto and Kinoshita do not appear to address all of the deficiencies of the cited portions of Sato. In particular, the cited portions of Iwamoto and Kinoshita do not appear to disclose or teach, *inter alia*, a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, the clamping device further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force or second force in a negative first direction at the second end of the second side, as recited in claim 1.

For example, the cited portions of Iwamoto fail to provide any teaching of applying a second force normal to the direction of the acceleration, let alone any teaching of dynamically varying such a force normal to the direction of the acceleration

during motion of the patterning device in an automatic fashion. Rather, the cited portions of Iwamoto appear to be directed to applying a force parallel to the direction of the acceleration.

Indeed, Iwamoto appears to teach away from the cited portions of Sato. To address the deficiencies of holding a substrate by a vacuum source on one side of the substrate, Iwamoto teaches to apply a force to a perpendicular side of the substrate in a direction parallel to the direction of the acceleration of the substrate. This contrasts with application with a force on opposite sides of the substrate in Iwamoto and perpendicular to the direction of the acceleration of the substrate.

Moreover, even if the teachings of Iwamoto were properly combinable into the Sato arrangement (which Applicant does not concede), Applicant submits that the cited portions of Sato would not appear to disclose or teach the differing application of the second normal force on opposite ends of the second side as claimed. Rather, the cited portions of Sato appear to be directed to an arrangement where the force applied by the counter mass 102 occurs along the center line of the substrate 101 thus not creating a moment about the center of the substrate 101. By this careful application of force, the arrangement of Sato hopes to achieve cancellation of all forces. In contrast, the recited clamping device applies a torque of the patterning device by virtue of the differing application of the normal second forces on opposite ends of the second side of the patterning device. Thus, the cited portions of Sato appear to teach away from the recited clamping device.

Moreover, the predictable use of Iwamoto in the Sato arrangement would be to provide the lever, hinge and counter mass of Sato to apply a force to a side of the mask in Sato in a direction parallel to the acceleration of the mask in Sato. There is no indication in Iwamoto of dynamically varying a force normal to the direction of the acceleration during motion of the patterning device in an automatic fashion or of doing so in Sato.

The Office Action generally asserts that "the combined teachings of the references would have suggested automation of the apparatus of Sato to a person of ordinary skill in the art." As discussed above, Applicant strongly disagrees as the cited portions of Iwamoto are directed to an entirely different apparatus and concept. As

noted above, the cited portions of Iwamoto are directed to applying forces in parallel to the plane of the substrate 101. In contrast, claim 1 is directed to perpendicular forces. A person of mere ordinary skill in the art would take no relevant guidance from the cited portions of Iwamoto.

Moreover, even if the cited portions of Iwamoto teach such automation (which Applicant denies), the Office Action admits that the cited portions of Iwamoto fail to teach the recited differing application of forces ("Sato and Iwamoto fail to teach wherein the clamping device is further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force at the second end of the second side.")

To overcome this shortcoming, the Office Action asserts that "Kinoshita et al. teach wherein a wafer vacuum chucking method with two separate vacuum clamping devices are connected to two different holes for independent exhaustion (Figure 22, part 209a, 209b and Col. 25, lines 30-42)." Respectfully, Applicant submits that the cited portions of Kinoshita have no particular relevance.

First, the cited portions of Kinoshita are directed to a wafer that is chemically processed. This has no bearing on a patterning device as claimed.

Further, the cited portions of Kinoshita are directed to applying a clamping force on only one side. Thus, the cited portions of Kinoshita have no particular teaching regarding application of forces on two sides as claimed and thus no bearing to the cited portions of Sato and Iwamoto.

And, most tellingly, there appears to be nothing about the recited differing application of forces. Even if there are two "independently" controlled spaces 209a, 209b in Kinoshita, that most certainly doesn't disclose that the spaces 209a, 209b apply different forces. And, even if it did, there is no teaching to have, for example, space 209a apply a suction force (e.g., a second force in a positive first direction) and to have space 209b apply no force or a repelling force (e.g., no second force or second force in a negative first direction). On the contrary, the cited portions of Kinoshita appear merely to teach both spaces 209a, 209b applying only a suction force and thus fail to teach claim 1.

Claim 24

Applicant submits that the cited portions of Sato, Iwamoto and Kinoshita do not appear to at least disclose or teach a device manufacturing method comprising, *inter alia*, subjecting the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, wherein, when there is an acceleration in the second direction, the second side of the patterning device is subjected to the at least one second force in a positive first direction at the first end of the second side and the second side of the patterning device is subjected to no second force or second force in a negative first direction at the second end of the second side, as recited in claim 24.

Applicant submits, as acknowledged in the Office Action, that the cited portions of Sato fail to disclose or teach subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device.

Further, Applicant submits that the cited portions of Sato fail to disclose or teach that when there is an acceleration in the second direction, the second side of the patterning device is subjected to the at least one second force in a positive first direction at the first end of the second side and the second side of the patterning device is subjected to no second force or second force in a negative first direction at the second end of the second side.

The Office Action responds at page 4 of the Office Action that "Sato however, does teach that each of the first end and the second end of the second side have a vacuum clamping device." However, Applicant fails to see how that discloses the recited differing application of forces. Rather, it appears that both apertures 30a, 32a merely apply a same force in a same direction to the reticle 3 to hold the reticle.

Even assuming *arguendo* that the cited portions of Sato, Iwamoto and Kinoshita are properly combinable (which Applicant does not concede), the cited portions of

Kinoshita and Iwamoto do not appear to address all of the deficiencies of the cited portions of Sato. In particular, the cited portions of Kinoshita and Iwamoto do not appear to disclose or teach, *inter alia*, subjecting the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, wherein, when there is an acceleration in the second direction, the second side of the patterning device is subjected to the at least one second force in a positive first direction at the first end of the second side and the second side of the patterning device is subjected to no second force or second force in a negative first direction at the second end of the second side, as recited in claim 24.

For example, the cited portions of Iwamoto fail to provide any teaching of subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, let alone any teaching of such second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device. Rather, the cited portions of Iwamoto appear to be directed to applying a force parallel to the direction of the acceleration.

Indeed, Iwamoto appears to teach away from the cited portions of Sato. To address the deficiencies of holding a substrate by a vacuum source on one side of the substrate, Iwamoto teaches to apply a force to a perpendicular side of the substrate in a direction parallel to the direction of the acceleration of the substrate. This contrasts with application with a force on opposite sides of the substrate in Iwamoto and perpendicular to the direction of the acceleration of the substrate.

Moreover, even if the teachings of Iwamoto were properly combinable into the Sato arrangement (which Applicant does not concede), Applicant submits that the cited portions of Sato would not appear to disclose or teach the differing application of the second normal force on opposite ends of the second side as claimed. Rather, the cited portions of Sato appear to be directed to an arrangement where the force applied by the counter mass 102 occurs along the center line of the substrate 101 thus not creating a moment about the center of the substrate 101. By this careful application of force, the

arrangement of Sato hopes to achieve cancellation of all forces. In contrast, the recited clamping device applies a torque of the patterning device by virtue of the differing application of the normal second forces on opposite ends of the second side of the patterning device. Thus, the cited portions of Sato appear to teach away from the recited clamping device.

Moreover, the predictable use of Iwamoto in the Sato arrangement would be to provide the lever, hinge and counter mass of Sato to apply a force to a side of the mask in Sato in a direction parallel to the acceleration of the mask in Sato. There is no indication in Iwamoto of dynamically varying a force normal to the direction of the acceleration during motion of the patterning device in an automatic fashion or of doing so in Sato.

The Office Action generally asserts that "the combined teachings of the references would have suggested automation of the apparatus of Sato to a person of ordinary skill in the art." As discussed above, Applicant strongly disagrees as the cited portions of Iwamoto are directed to an entirely different apparatus and concept. As noted above, the cited portions of Iwamoto are directed to applying forces in parallel to the plane of the substrate 101. In contrast, claim 24 is directed to perpendicular forces. A person of mere ordinary skill in the art would take no relevant guidance from the cited portions of Iwamoto.

Moreover, even if the cited portions of Iwamoto teach such automation (which Applicant denies), the Office Action admits that the cited portions of Iwamoto fail to teach the recited differing application of forces ("Sato and Iwamoto fail to teach wherein the clamping device is further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force at the second end of the second side.")

To overcome this shortcoming, the Office Action asserts that "Kinoshita et al. teach wherein a wafer vacuum chucking method with two separate vacuum clamping devices are connected to two different holes for independent exhaustion (Figure 22, part 209a, 209b and Col. 25, lines 30-42)." Respectfully, Applicant submits that the cited portions of Kinoshita have no particular relevance.

First, the cited portions of Kinoshita are directed to a wafer that is chemically



processed. This has no bearing on a patterning device as claimed.

Further, the cited portions of Kinoshita are directed to applying a clamping force on only one side. Thus, the cited portions of Kinoshita have no particular teaching regarding application of forces on two sides as claimed and thus no bearing to the cited portions of Sato and Iwamoto.

And, most tellingly, there appears to be nothing about the recited differing application of forces. Even if there are two "independently" controlled spaces 209a, 209b in Kinoshita, that most certainly doesn't disclose that the spaces 209a, 209b apply different forces. And, even if it did, there is no teaching to have, for example, space 209a apply a suction force (e.g., a second force in a positive first direction) and to have space 209b apply no force or a repelling force (e.g., no second force or second force in a negative first direction). On the contrary, the cited portions of Kinoshita appear merely to teach both spaces 209a, 209b applying only a suction force and thus fail to teach claim 24.

For at least these reasons, the rejection of claims 1 and 24 should be withdrawn. Claims 3-6, 10, 11, 14, 22, 23, 26-29, 33 and 34 depend from claims 1 and 24 and therefore are allowable over the cited portions of Sato, Kinoshita and Iwamoto for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

**Claims 12, 14, 15, 35, 37 and 38 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato, Iwamoto, Kinoshita and U.S. Patent Application Publication No. 2003/0197841 to Araki et al. ("Araki"). Applicant traverses.**

Claims 12, 14, 15, 35, 37 and 38 depend from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato, Iwamoto and Kinoshita for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Iwamoto, Kinoshita and Araki are properly combinable (which Applicant does not concede), the cited portions of

Araki do not appear to address all of the deficiencies of the cited portions of Sato, Iwamoto and Kinoshita. For example, the cited portions of Araki do not appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, the clamping device further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force or second force in a negative first direction at the second end of the second side, as recited in claims 12, 14 and 15, nor disclose or teach, *inter alia*, subjecting the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, wherein, when there is an acceleration in the second direction, the second side of the patterning device is subjected to the at least one second force in a positive first direction at the first end of the second side and the second side of the patterning device is subjected to no second force or second force in a negative first direction at the second end of the second side, as recited in claims 35, 37 and 38.

For at least these reasons, the rejection of claims 12, 14, 15, 35, 37 and 38 should be withdrawn.

**Claims 13 and 36 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato, Iwamoto, Kinoshita and U.S. Patent No. 4,795,518 to Meinel ("Meinel"). Applicant traverses.**

Claims 13 and 36 depends from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato, Iwamoto and Kinoshita for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Iwamoto, Kinoshita and

Meinel are properly combinable (which Applicant does not concede), the cited portions of Meinel do not appear to address all of the deficiencies of the cited portions of Sato, Iwamoto and Kinoshita. For example, the cited portions of Meinel do not appear to appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, the clamping device further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force or second force in a negative first direction at the second end of the second side, as recited in claim 13 nor disclose or teach, *inter alia*, subjecting the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, wherein, when there is an acceleration in the second direction, the second side of the patterning device is subjected to the at least one second force in a positive first direction at the first end of the second side and the second side of the patterning device is subjected to no second force or second force in a negative first direction at the second end of the second side, as recited in claim 36.

For at least these reasons, the rejection of claims 13 and 36 should be withdrawn.

**Claims 7, 9, 30 and 32 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato, Iwamoto, Kinoshita and U.S. Patent No. 5,847,813 to Hirayanagi ("Hirayanagi"). Applicant traverses.**

Claims 7, 9, 30 and 32 depend from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato, Iwamoto and Kinoshita for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Iwamoto, Kinoshita and Hirayanagi are properly combinable (which Applicant does not concede), the cited portions of Hirayanagi do not appear to address all of the deficiencies of the cited portions of Sato, Iwamoto and Kinoshita. For example, the cited portions of Hirayanagi do not appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, the clamping device further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force or second force in a negative first direction at the second end of the second side, as recited in claims 7 and 9, nor disclose or teach, *inter alia*, subjecting the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, wherein, when there is an acceleration in the second direction, the second side of the patterning device is subjected to the at least one second force in a positive first direction at the first end of the second side and the second side of the patterning device is subjected to no second force or second force in a negative first direction at the second end of the second side, as recited in claims 30 and 32.

For at least these reasons, the rejection of claims 7, 9, 30 and 32 should be withdrawn.

**Claims 8 and 31 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato/Iwamoto/Kinoshita/Hirayanagi and Sato/Iwamoto/Kinoshita further in view of Meinel. Applicant traverses.**

Claims 8 and 31 depends from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato/Iwamoto/Hirayanagi/Kinoshita and Sato/Iwamoto/Kinoshita for the reasons noted above with respect to claims 7 and 30

respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Iwamoto, Kinoshita, Hirayanagi, and Meinel are properly combinable (which Applicant does not concede), the cited portions of Meinel do not appear to address all of the deficiencies of the cited portions of Sato/Iwamoto/Kinoshita/Hirayanagi and Sato/Iwamoto/Kinoshita. For example, the cited portions of Meinel do not appear to appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, the clamping device further configured to apply, when there is an acceleration in the second direction, the at least one second force in a positive first direction at the first end of the second side and no second force or second force in a negative first direction at the second end of the second side, as recited in claim 8, nor disclose or teach, *inter alia*, subjecting the second side of the patterning device to at least one second force in the first direction, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, wherein, when there is an acceleration in the second direction, the second side of the patterning device is subjected to the at least one second force in a positive first direction at the first end of the second side and the second side of the patterning device is subjected to no second force or second force in a negative first direction at the second end of the second side, as recited in claim 31.

For at least these reasons, the rejection of claims 8 and 31 should be withdrawn.

**Claims 16, 18, 20, 21 and 39 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato in view of Japanese Patent Application Publication No. JP 2000-299370 to Sakamoto ("Sakamoto") and Hirayanagi. Applicant traverses.**

Claim 16

Applicant submits that the cited portions of Sato, Sakamoto and Hirayanagi do not appear to at least disclose or teach a support constructed to support a first side of a patterning device, the patterning device capable of imparting a radiation beam incident on a second side of the patterning device with a pattern in its cross-section to form a patterned radiation beam, wherein, *inter alia*, the support is associated with a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device, the clamping device arranged to subject the second side of the patterning device to an additional clamping force, at least when the support is accelerated, the first and second side of the patterning device situated substantially opposite each other and the clamping device being connected to a vacuum tube, as recited in claim 16.

Applicant submits, as acknowledged in the Office Action, that the cited portions of Sato fail to disclose or teach a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device, the clamping device arranged to subject the second side of the patterning device to an additional clamping force, at least when the support is accelerated.

Even assuming *arguendo* that the cited portions of Sato, Sakamoto and Hirayanagi are properly combinable (which Applicant does not concede), the cited portions of Hirayanagi and Sakamoto do not appear to address all of the deficiencies of the cited portions of Sato.

For example, the cited portions of Hirayanagi do not disclose or otherwise render obvious a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device. There does not appear to be any such surface in Figure 6(b) of Hirayanagi.

The Office Action asserts that "the clamps could just as well be attached to the outside edge of a mask holder, known in the art, such as that depicted in Hirayanagi (the edge that phrase 40b's line actually ends on) as the inside surface (that part 45 is sitting on)..." However, even if this assertion were correct (which Applicant denies), it

would still not teach claim 16. First of all, the relied on side surface of lower portion 40b does not face the mask 41 and thus fails to teach a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device (to which the clamping device which is releasably attached). Further, the cited portions of Hirayanagi merely reinforce the arrangement depicted in the cited portions of Sato – a device attached to a surface parallel to the recited first side of the patterning device, rather than perpendicular.

Hirayanagi also appears to teach away. In particular, Hirayanagi appears to indicate that one should use the clamps 45 in the circumstance where the mask cannot be held via its bottom surface. See, e.g., Hirayanagi, col. 4, lines 38-42 (discussing, in relation to Figure 1, a mask that cannot be held by electrostatic attraction via its bottom surface) and col. 4, lines 56-65 (discussing a solution involving clamping the mask from the top side). Thus, Hirayanagi would teach away from subjecting the first side of the patterning device to at least one first force, and subjecting the second side of the patterning device to at least one second force. To Hirayanagi, it is one or the other – a clamping force on a first side or a clamping force on another side.

The Office Action further relies on Sakamoto. But like the cited portions of Sato and Hirayanagi, the cited portions of Sakamoto fail to disclose or otherwise render obvious a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device. On the contrary, it appears to teach away. The cited portions of Sakamoto merely reinforce the arrangements depicted in the cited portions of Sato and Hirayanagi – a device attached to a surface parallel to the recited first side of the patterning device, rather than perpendicular.

The Office Action further states that “[i]t would have been an obvious matter of design choice to adjust the clamp location, since applicant has not disclosed that the location solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the clamp on the side and facing the mask.” Applicant respectfully disagrees.

For example, paragraphs [0044] and [0045] of the specification disclose that “[a]s shown in Fig. 7, the clamping device CD may also be provided with vacuum tubes VT2.

In this embodiment a very stiff construction can be obtained for maintaining the position of the clamping device and the patterning device MA when the support MT is accelerated. In this embodiment the patterning device MA is fixedly attached by vacuum suction to the clamping device CD, which is held against upstanding edges UP of the support. Fig. 8 shows another embodiment of a support MT according to the invention. In this example, a vacuum tube VT3 extends through the upright parts UP of the support MT to which the clamping device CD abuts when obtaining the additional contact area ACA. When vacuum is applied to vacuum tube VT3 the clamping device will be sucked against the support MT, thus increasing force F3 to stabilize the clamping device CD in the support MT." Thus, it clearly provides that the location thus "solves [a] stated problem" and is "for [a] particular purpose." Particularly, the particular arrangement can reduce or prevent slippage, provide a stiff construction and/or provide improved stability.

Moreover, "design choice" is not a ground for rejection under 35 U.S.C. §103. As stated in the specification, a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device have one or more advantages and does not present a mere "design choice." Design choices are discussed in the Manual of Patent Examining Procedure (MPEP) §2144.04(VI)(C), but only insofar that they constitute a rearrangement of parts. Applicant's claim cannot represent a "rearrangement of parts," because the cited references fail to disclose all of the parts disclosed in Applicant's claims. Moreover, the Office Action fails to cite any legal authority to support the "design choice" rejection and the Office Action appears to be applying a per se rule to reject the claim under obviousness contrary to legal precedent. The Federal Circuit has held that the claimed invention as a whole must be evaluated under the standards set down in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) and that the use of a per se rule is improper in making an obviousness rejection since a per se rule is inconsistent with the fact specific analysis of claims and prior art mandated by 35 U.S.C. §103. See, e.g., *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995) and *In re Brouwer*, 77 F.3d 422, 425 26, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996). Moreover, the Supreme Court's decision in *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007) mandates a flexible approach



to obviousness rejections and the talismanic use of "design choice" as a per se rule is an improper, "rigid" approach to an obviousness rejection.

### Claim 39

Applicant submits that the cited portions of Sato, Sakamoto and Hirayanagi do not appear to at least disclose or teach a method comprising, *inter alia*, releasably attaching a clamping device to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device, the clamping device connected to a vacuum tube; subjecting the first side of the patterning device to at least one first force normal to the direction of the acceleration so that an acceleration of the patterning device with respect to the support is suppressed by frictional forces occurring at a contact area between the patterning device and the support; and subjecting the second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, using the clamping device, as recited in claim 39.

Applicant submits, as acknowledged in the Office Action, that the cited portions of Sato fail to disclose or teach releasably attaching a clamping device to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device, and subjecting the second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, using the clamping device. Further, the cited portions of Sato appear not to disclose or teach the clamping device connected to a vacuum tube.

Even assuming *arguendo* that the cited portions of Sato, Sakamoto and Hirayanagi are properly combinable (which Applicant does not concede), the cited portions of Hirayanagi and Sakamoto do not appear to address all of the deficiencies of the cited portions of Sato.

For example, the cited portions of Hirayanagi do not disclose or otherwise render obvious releasably attaching a clamping device to a surface of the recited support, the surface extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device. There does not appear to be any such surface

in Figure 6(b) of Hirayanagi.

The Office Action asserts that “the clamps could just as well be attached to the outside edge of a mask holder, known in the art, such as that depicted in Hirayanagi (the edge that phrase 40b’s line actually ends on) as the inside surface (that part 45 is sitting on)...” However, even if this assertion were correct (which Applicant denies), it would still not teach claim 39. First of all, the relied on side surface of lower portion 40b does not face the mask 41 and thus fails to teach a surface of the recited support, the surface extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device (and to which the clamping device which is releasably attached). Further, the cited portions of Hirayanagi merely reinforce the arrangement depicted in the cited portions of Sato – a device attached to a surface parallel to the recited first side of the patterning device, rather than perpendicular.

Hirayanagi also appears to teach away. In particular, Hirayanagi appears to indicate that one should use the clamps 45 in the circumstance where the mask cannot be held via its bottom surface. See, e.g., Hirayanagi, col. 4, lines 38-42 (discussing, in relation to Figure 1, a mask that cannot be held by electrostatic attraction via its bottom surface) and col. 4, lines 56-65 (discussing a solution involving clamping the mask from the top side). Thus, Hirayanagi would teach away from subjecting the first side of the patterning device to at least one first force, and subjecting the second side of the patterning device to at least one second force. To Hirayanagi, it is one or the other – a clamping force on a first side or a clamping force on another side.

The Office Action further relies on Sakamoto. But like the cited portions of Sato and Hirayanagi, the cited portions of Sakamoto fail to disclose or otherwise render obvious releasably attaching a clamping device to a surface of the recited support, the surface extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device. On the contrary, it appears to teach away. The cited portions of Sakamoto merely reinforce the arrangements depicted in the cited portions of Sato and Hirayanagi – a device attached to a surface parallel to the recited first side of the patterning device, rather than perpendicular.

The Office Action further states that “[i]t would have been an obvious matter of design choice to adjust the clamp location, since applicant has not disclosed that the

location solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the clamp on the side and facing the mask." Applicant respectfully disagrees.

For example, paragraphs [0044] and [0045] of the specification disclose that "[a]s shown in Fig. 7, the clamping device CD may also be provided with vacuum tubes VT2. In this embodiment a very stiff construction can be obtained for maintaining the position of the clamping device and the patterning device MA when the support MT is accelerated. In this embodiment the patterning device MA is fixedly attached by vacuum suction to the clamping device CD, which is held against upstanding edges UP of the support. Fig. 8 shows another embodiment of a support MT according to the invention. In this example, a vacuum tube VT3 extends through the upright parts UP of the support MT to which the clamping device CD abuts when obtaining the additional contact area ACA. When vacuum is applied to vacuum tube VT3 the clamping device will be sucked against the support MT, thus increasing force F3 to stabilize the clamping device CD in the support MT." Thus, it clearly provides that the location thus "solves [a] stated problem" and is "for [a] particular purpose." Particularly, the particular arrangement can reduce or prevent slippage, provide a stiff construction and/or provide improved stability.

Moreover, "design choice" is not a ground for rejection under 35 U.S.C. §103. As stated in the specification, a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device have one or more advantages and does not present a mere "design choice." Design choices are discussed in the Manual of Patent Examining Procedure (MPEP) §2144.04(VI)(C), but only insofar that they constitute a rearrangement of parts. Applicant's claim cannot represent a "rearrangement of parts," because the cited references fail to disclose all of the parts disclosed in Applicant's claims. Moreover, the Office Action fails to cite any legal authority to support the "design choice" rejection and the Office Action appears to be applying a per se rule to reject the claim under obviousness contrary to legal precedent.

For at least these reasons, the rejection of claims 16 and 39 should be withdrawn. Claims 18, 20, and 21 depend from claim 16 and therefore are allowable

over the cited portions of Sato, Sakamoto and Hirayanagi for the reasons noted above with respect to claim 16, as well as for the features they recite individually.

**Claim 19 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato, Sakamoto Hirayanagi and Meinel. Applicant traverses.**

Claim 19 depends from claim 16 and therefore is allowable over the cited portions of Sato, Sakamoto and Hirayanagi for the reasons noted above with respect to claim 16, as well as for the features it recites.

Even assuming *arguendo* that the cited portions of Sato, Sakamoto, Hirayanagi, and Meinel are properly combinable (which Applicant does not concede), the cited portions of Meinel do not appear to address all of the deficiencies of the cited portions of Sato, Sakamoto and Hirayanagi. For example, the cited portions of Meinel do not appear to disclose or teach, *inter alia*, a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and facing towards the patterning device, the clamping device being connected to a vacuum tube and the clamping device arranged to subject the second side of the patterning device to an additional clamping force, at least when the support is accelerated, as recited in claim 19.

For at least these reasons, the rejection of claim 19 should be withdrawn.

**Conclusion**

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

If an extension of time is necessary to prevent abandonment of this application, then such an extension of time is hereby petitioned for under 37 C.F.R. §1.136(a). Any fees required (including fees for net addition of claims) are hereby authorized to be

charged to our Deposit Account No. 033975 (Ref. No. **81468-0324818**).

Date: July 22, 2011

Respectfully submitted

By: \_\_\_\_\_

Jean-Paul G. Hoffman  
Registration No. 42,663

Direct: (703) 770-7794  
Main: (703) 770-7900  
Fax: (703) 770-7901

Pillsbury Winthrop Shaw Pittman LLP  
P.O. Box 10500  
McLean, Virginia 22102